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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,957	03/15/2004	Sarah K. Patch	GEMS8081.195	9964

7590 10/12/2006

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EXAMINER

CHAO, ELMER M

ART UNIT PAPER NUMBER

3737

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/800,957

Applicant(s)

PATCH, SARAH K.

Examiner

Elmer Chao

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: JP6363211879.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :6/16/2004 & 6/28/2004 & 7/2/2004.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1-12** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

On October 26, 2005, the USPTO published Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility. See: [http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf)

This guideline details a procedure for determining patent eligible subject matter. As to **claim 1**, the first step in this process is whether the claims fall within one of enumerated categories. In the immediate application, the claims are drawn to a process - a "method of acquiring a first set of TCT data...and determining a second set of TCT data" - and meets this step. However, the analysis does not end here. The next step is whether a judicial exception (abstract ideas, laws of nature, natural phenomenon) is provided in the claim. In the immediate application, claim 1 clearly includes one of the judicial exceptions in that "determining" the data is nothing more than an abstract idea. While abstract ideas alone are not eligible, the claim as a whole must be analyzed to determine whether it is for a particular application of the abstract idea. For claims including such excluded subject matter to be eligible, the claim must be

Art Unit: 3737

for a practical application of the abstract idea, law of nature, or natural phenomena. To satisfy the requirement of a practical application, the claimed invention must:

(1) transform an article or physical object to a different state or thing; if no transformation, then

(2) the claimed invention must produce a useful, concrete, and tangible result.

Regarding (1) above, the claims do not provide a transformation or reduction of an article to a different state or thing. "acquiring" and "determining" the data of a second set of data does not transform an article or physical object to a different state or thing. Accordingly, one must then consider whether the claimed invention produces a useful, concrete, and tangible result.

**(1) Useful Result**

For an invention to be "useful" it must satisfy the utility requirement of section 101. The USPTO's official interpretation of the utility requirement provides that the utility of the invention has to be (i) specific, (ii) substantial and (iii) credible. See MPEP 2107. It can be argued that the claim does not provide a useful result in that the claim does not actually solve a problem. Simple inspection with no result thereafter does not appear to be useful.

**(2) Tangible Result**

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible

Art Unit: 3737

requirement does require that the claim must recite more than a 101 judicial exception, in that the process claim must set forth a practical application of that 101 judicial exception to produce a real world result.

Regarding the tangible result requirement, the claim clearly does not provide a practical application for reasons similar to that discussed above. For example, once the second set of data is determined, how is this then applied?

### (3) Concrete Result

Another consideration is whether the invention produces a “concrete” result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Resolving this question is dependent on the level of skill in the art. For example, if the claimed invention is for a process which requires a particular skill, to determine whether the process is substantially repeatable will necessarily require a determination of the level of skill of the ordinary skilled artisan.

Regarding the concrete result requirement, the claim does not provide a result that can be assured in that the result cannot be substantially repeatable and the process cannot substantially produce the same result again. Simply determining the second set of data does not produce any concrete images.

In view of the above analysis, applicant's claim 1 is a process which includes a judicial exception therein. Upon review of the claim as a whole, there is no transformation nor does the claim produce a useful, concrete, and tangible result. Accordingly, the claim is non-statutory under 35 U.S.C. 101.

Art Unit: 3737

It is noted that the subject matter of **claim 2** does not remedy the statutory requirement.

Regarding **claims 3-12**, the claims are dependent on claim 1 and are likewise rejected.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 16-19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 16** recites the limitation "The TCT imaging system" in the first sentence of the claim. There is insufficient antecedent basis for this limitation in the claim. The examiner suspects that the applicant was referring to the TCT imaging system of claim 13, and therefore instead meant for claim 16 to be dependent on claim 13. The examiner will, for the purpose of this office action, interpret claim 16 to read "The TCT imaging system of claim 13 wherein the...."

Regarding **claims 17-19**, the claims are dependent on claim 16 and are likewise rejected.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-3, 5-9, 13, 16-19, 24-26** are rejected under 35 U.S.C. 102(b) as being anticipated by Kruger (U.S. 6,216,025 B1).

Regarding **claims 1-3, 9, 13, 16-19, and 24-26** Kruger '025 teaches a method of imaging a breast comprising the steps of: projecting high frequency energy (C4, L46-47, "...microwave or radio wave energy...") toward a breast to induce thermal expansion of tissue in the breast positioned inside hemispherical shaped imaging tank (Fig. 1, Item 14) having a fluid disposed therein, the fluid having dielectric and ultrasonic properties similar to that of breast tissue (C4, L27-34; C5, L5-8) with an energy source (C4, L49-51; Fig. 1, Item 22) to detect a tumor in the breast (C5, L11-15); receiving ultrasonic emissions from a first portion of the breast resulting from the thermal expansion (C6, L17-21, "Following each pulse of radiation...signals recorded by each of the transducer elements...") by means of one or more sensors placed along an external surface of the tank (Fig. 2, Item 33); generating a first TCT dataset from the ultrasonic emissions (Fig. 12A, Item 92); and deriving a second TCT dataset from the first TCT dataset (Fig. 12A, Item 98) with the use of a computer (Fig. 1, Item 36).



Art Unit: 3737

Regarding **claims 5-8**, Kruger '025 teaches the step of impulsively and periodically pulsing the imaging object (Fig. 12B, Item 108, the step describes varying the period between a range of numbers, which can be varying "impulsively," or set constant, "periodically."). Also, the RF pulses are both uniform and selective (Fig. 2, Item 14, see the wave propagate in the hemispherical bowl in a uniform manner, as it is selectively sourced from the bottom of the bowl).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruger '025 in view of Takashima (JP363211879). Kruger '025 teaches the method of acquiring the first set of TCT data and determining the second set of TCT data. Kruger '025 does not disclose the method of reducing the shading of an image. However, Takashima '879 teaches a method of shading correction by superposing parabolic waveforms or triangular pulses (abstract). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kruger '025 to correct the shading of the image generated by the two data sets. Such a modification is advantageous when imaging because the image would be made clearer and easier to view by reducing the shading of it.

Art Unit: 3737

**Claim 10-12, 13-15, and 20, 21, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruger '025 in view of Ben-Haim et al. (U.S. 2002/0065455 A1). Kruger '025 teaches the limitations as discussed above. Kruger '025 does not teach using a TCT data set to determine a second set of TCT data through the use of a Legendre Polynomial. However, Ben-Haim '455 teaches the use of a Legendre Polynomial (Para 149). It would have been obvious to a person of ordinary skill in the art to modify Kruger '025 to include the use of a Legendre Polynomial. Such a modification is useful in assisting in the imaging of the imaging object at remote locations, as evidenced by Ben-Haim '455's use of it in determining the location and orientations of remote objects (Para 157).

**Claim 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruger '025 in view of Ben-Haim '455, and further in view of Maas, III (U.S. 6,181,832 B1). Kruger '025 and Ben-Haim '455 disclose all of the limitations as discussed above. They do not disclose the use of a computer to reduce partial scan artifacts in an image. However, Maas '832 teaches the use of a computer to reduce motion artifacts from image data (abstract). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kruger '025 and Ben-Haim '455 to include the computer to reduce the motion artifacts from image data as evidenced by Maas '832. Such a modification will yield in a more accurate image if the patient inadvertently moves (C1, L35-46).

Art Unit: 3737

***Conclusion***


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alba (U.S. 5,121,629).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmer Chao whose telephone number is (571)272-0674. The examiner can normally be reached on 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EC

  
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